In re Patent Application of:
HUANG ET AL
Serial No. **10/726,458**
Filed: **December 3, 2003**

AMENDMENTS TO THE CLAIMS

1. (currently amended) A multistage amplifier for amplifying light over a wavelength band comprising:
a first span of amplifying fiber;
a second span of amplifying fiber optically coupled with the first span;
a gain flattening filter (GFF) for attenuating certain bands of the output spectrum more than others, to attempt to provide a flatter output response in-line with at least one of the first and second spans of amplifying fiber for attenuating predetermined wavelengths of amplified light, WHEREIN A FIRST gain spectral response of the first and second spans of amplifying fibre including the GFF measured over the wavelength band has shape of a ripple that oscillates as a function of wavelength such that a plurality of peaks in the form of maxima and valleys in the form of minima occur at a plurality of different wavelengths, each different wavelength corresponding to a different channel; and,
a second gain flattening compensating filter for attenuating certain bands of the output spectrum more than others, to attempt to provide a flatter output response ~~in-in-line~~ in-line with one of the first and second spans of fiber having a SECOND spectral response that has a second plurality of peaks in the form of maxima and valleys in the form of minima, wherein the second spectral response is absent at least 50% of four most predominant peaks or valleys at channels where peaks or valleys, respectively, were present in the first spectral response, and WHEREIN a maximum ripple amplitude in the second spectral response is less than a maximum ripple amplitude in the first gain spectral response.

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2. (original) A multistage optical amplifier as defined in claim 1, wherein the GFF is downstream of the first span of amplifying fiber and is disposed to receive light from at least one of the first and second spans of amplifying fiber.

3. (original) A multistage optical amplifier as defined in claim 1 wherein the second compensating filter is a Bragg grating.

4. (original) A multistage optical amplifier as defined in claim 2, wherein the second compensating filter is a Bragg grating and wherein the second spectral response has minima at at least 10% of wavelengths where peaks were present in the first spectral response.

5. (original) A multistage optical amplifier as defined in claim 3 wherein the wavelength band is from 1525 to 1565 nm and wherein the amplifying fiber is rare earth doped.

6. (original) A multistage optical amplifier as defined in claim 1 wherein the second compensating filter is disposed between the first and second spans of optical fiber.

7. (original) A multistage optical amplifier as defined in claim 1 wherein the GFF is disposed between the first and second spans of optical fiber.

8. (cancelled)

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9. (currently amended) An amplifier for amplifying light over a wavelength band comprising:
a first span of amplifying fiber;
a gain flattening filter (GFF) for attenuating certain bands of the output spectrum more than others, to attempt to provide a flatter output response in-line with the first span of amplifying fiber for attenuating predetermined wavelengths of amplified light, WHEREIN A FIRST gain spectral response of the first span of amplifying fibre including the GFF measured over the wavelength band has shape of a ripple that oscillates as a function of wavelength such that a plurality of peaks in the form of maxima and valleys in the form of minima occur at a plurality of different wavelengths; and,
a second compensating gain flattening filter for attenuating certain bands of the output spectrum more than others, to attempt to provide a flatter output response having a SECOND spectral response that has a second plurality of peaks in the form of maxima and valleys in the form of minima, wherein the second spectral response is absent at least 50% of peaks at wavelengths where peaks were present in the first spectral response, and WHEREIN a maximum ripple amplitude in the second spectral response is less than a maximum ripple amplitude in the first gain spectral response.

10. (original) An amplifier as defined in claim 9, wherein the amplifying fiber is erbium-doped fiber.

11. (cancelled)